## (19) World Intellectual Property Organization International Bureau





### (43) International Publication Date 9 October 2003 (09.10.2003)

### PCT

# (10) International Publication Number WO 03/083140 A2

(51) International Patent Classification<sup>7</sup>: C12N 151/11

C12Q 1/68,

(21) International Application Number: PCT/US03/08486

(22) International Filing Date: 19 March 2003 (19.03.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/367,144

22 March 2002 (22.03.2002) U

- (71) Applicant (for all designated States except US): ST.JUDE CHILDREN'S RESEARCH HOSPITAL, INC. [US/US]; 332 N. Lauderdale Street, Memphis, TN 38105-2794 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): DOWNING, James, R. [US/US]; 7650 Chapel Ridge Drive, Cordova, TN 38106 (US). YEOH; Eng-Juh [MY/SG]; 5 Lower Kent Ridge Road, Singapore 119074, Republic of Singapore (SG). WILKINS, Dawn, E. [US/US]; 3321 Whippoorwill Lane, Oxford, MS 38655 (US). WONG, Limsoon [SG/SG]; 6B Balmeg Hill #02-01, Singapore 119908, Republic of Singapore (SG).

- (74) Agent: COULTER, Kathryn, L. Alston & Bird; Bank of America Plaza, Suite 4000, 101 South Tryon Street, Charlotte, NC 28280-4000 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

 without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



2

(54) Title: CLASSIFICATION AND PROGNOSIS PREDICTION OF ACUTE LYMPHOBLASSTIC LEUKEMIA BY GENE EXPRESSION PROFILING

(57) Abstract: The present invention provides methods and compositions useful for diagnosing and choosing treatment for leukemia patients. The claimed methods include methods of assigning a subject affected by leukemia to a leukemia risk group, methods of predicting whether a subject affected by leukemia has an increased risk of relapse, methods of predicting whether a subject affected by leukemia has an increased risk of developing secondary acute myeloid leukemia, methods to aid in the determination of a prognosis for a subject affected by leukemia, methods of choosing a therapy for a subject affected by leukemia, and methods of monitoring the disease state in a subject undergoing one or more therapies for leukemia. The claimed compositions include arrays having capture probes for the differentially-expressed genes of the invention, computer readable media having digitally-encoded expression profiles associated with leukemia risk groups, and kits for diagnosing and choosing therapy for leukemia patients.